

Remarks

To follow the telephone interviews of 12-14-2006 and 12-19-2006 and the agreement, Applicant is respectfully submitting the Supplemental Amendment to the claims with the Remarks to place it in condition for allowance.

The above amended claims, which contain the agreed allowable subject matters, are in correct form and patentable over prior art for the reasons as discussed during the interviews and as listed below.

I. Applicant's Thanks and Appreciations and Request

I.1. Applicant again expresses his thanks to the Honorable Under Secretary of Commerce for Intellectual Property and Director of the USPTO Jon Dudas and the Honorable Commissioner for Patents John Doll for their very helpful advice and consideration.

I.2. Applicant thanks the new Primary Examiner Ms. Dionne Mayes and the new Examiner Mr. Curtis Mayes for their time and constructive and helpful discussion and suggestions to reach the agreement on the allowable subject matter through the telephone interviews of 12-14-2006 and 12-19-2006.

I.3. Applicant thanks the Examiners for Mr. Mayes's writing the amendment to claim 26 for the present invention.

I.4. The amended claims are upon the agreed allowable subject matters patentable over the prior art, and in correct form. Therefore, applicant respectfully requests a timely issuance of the Notice of Allowance.

II. Amended Claim 26 Is Patentable Over the Prior Art

II.1. Claim 26 is amended as the Examiner proposed for the allowance.

II.2. The Allowable Subject Matter as claimed in Claim 26 is that:

The prior art does not teach or suggest methods of controlling optical fiber drawing process as claimed in claim 26 wherein the preform feeding speed and the fiber drawing speed are adjusted according to control signals generated based on the combination of

the calculated first bare fiber diameter deviation of the first measured bare fiber diameter from a first preselected bare fiber diameter value, and the calculated second bare fiber diameter deviation of the second measured bare fiber diameter from a second preselected bare fiber diameter value.

II.3. The prior art omits the claimed patentable key features, e.g., as recited below:

- (1) “measuring the outer diameters of said optical fiber, which is bare, at two or more different measurement locations by respective measurement devices before coating,
wherein a first location is close to the furnace to provide a first measured bare fiber diameter, and
a second location is below the first location, at this second location shrinkage of the outer diameter of said optical fiber, while stretched under the drawing, is not larger than a predetermined allowable bare fiber diameter deviation value of said optical fiber, or the second location is immediately before coating to provide a second measured bare fiber diameter;”
- (2) “calculating a first bare fiber diameter deviation of the first measured bare fiber diameter from a first preselected bare fiber diameter value;
calculating a second bare fiber diameter deviation of the second measured bare fiber diameter from a second preselected bare fiber diameter value which is less than the first preselected bare fiber diameter value;”
- (3) “generating control signals based on the combination of the first bare fiber diameter deviation and the second bare fiber diameter deviation for said optical fiber drawing process control;” and
- (4) “adjusting the feeding speed of said preform and the drawing speed of said fiber according to said control signals.”

II.4. Yoshimura US 5073179 and Kohei JP 06-206734 do not teach or suggest the above listed and claimed features.

Yoshimura has only one bare fiber measurement or by switching for his control. Kohei also uses switching, and never uses his two measurement devices at the same time for his control operation principle. The prior art does not teach or suggest to use both the calculated two

bare fiber deviations of the two (double) bare fiber diameter measurements at two different measurement locations by respective measurement device before coating, from their respective preselected values, as claimed in Claim 26.

III. Amended Claim 21 and 24-25 are Patentable Over the Prior Art.

III.1. The Allowable Subject Matter as claimed in the independent Claim 21 is that:

The prior art does not teach or suggest methods of controlling optical fiber drawing process as claimed in claim 21 wherein the preform feeding speed and the fiber drawing speed are adjusted according to control signals generated based on the combination of the calculated preform deviation, the calculated fiber diameter deviation, the measured preform diameter or shape, and the predetermined preform value.

III.2. The proposed combination of Harding US 4793840 and Suganuma JP 52-120841 is inoperable because their control operation principles against each other. Thus, to follow MPEP 2142, 2143.01 and 2145III and the court decisions, applicant respectfully submits that the combination is impermissible.

- (1) Suganuma clearly teaches and needs his preform feeding speed at “a fixed speed” “ V_p ”. He four times emphasizes that the preform is fed “at a fixed speed” [p.2, left-top-column line 8, right-bottom-column lines 11, 14-15; p.3, left-top column lines 8-9]. In addition to that, his example also shows a fixed speed “ $v_p = 0.80 \text{ cm/min}$ ” in Eq. (6) [p.3], p.3 left-bottom-column line 2, p.3 right-bottom-column line 12, and p.4 left-top-column line 11 in the document.
- (2) Suganuma’s preform feeding speed must be fixed as he clearly teaches. Otherwise, his equations (4) and (5) would not hold, and it would destroy his invention as a whole.
- (3) On the other hand, Harding’s “the preform feed rate (20) is modified (algorithm 21) to maintain an average fibre pulling rate within $\pm 5\%$ of the present pulling rate, to thus control the glass melting rate” [Harding’s Abstract and claims].
- (4) Thus, Harding’s control operation principle and Suganuma’s control operation principle are against each other. Thus, the combination of Harding and Suganuma is inoperable and causes no expectation of success.

(5) **MPEP 706.02(j) states:**

“To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria.”

“To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). [emphasis added]

(6) **MPEP 2143.01 THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE**

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

(7) **MPEP 2145 III: “... .. However, the claimed combination cannot change the principle of operation of the primary reference or render the reference inoperable for its intended purpose. See MPEP §2143.01.”**

III.3. Because the proposed combination of Harding and Suganuma is inoperable, there is no motivation to do the combination. Please see the above cited MPEP 2143.01 and the decision. Of course, there is no any teaching or suggestion in the references, or generally available knowledge, for the ordinary skills to do the proposed combination.

III.4. Even as proposed combination or modification, the resultant teachings of Harding and Suganuma still omit the claimed key features in Claim 21. [MPEP 2143.03, 2141, 706.02(j), wherein the court decisions].

(1) Even as proposed combination or modification, the resultant teachings of Harding and Suganuma still omit the following claimed key features in the amended Claim 21 as

follows: Claim 26 recites:

- “*generating control signals based on the combination of the preform deviation, the fiber diameter deviation, the measured preform diameter or shape, and the predetermined preform value for said optical fiber drawing process control;*”
- “*adjusting the feeding speed of said preform and the drawing speed of said fiber according to said control signals;*”
- “*whereby said optical fiber drawing process is robustly controlled against deviations of the preform outer diameter or shape at different locations and against deviations of various performs.*”

(2) MPEP 2143.03 All Claim Limitations Must Be Taught or Suggested

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

(3) MPEP 2141 BASIC CONSIDERATIONS WHICH APPLY TO OBVIOUSNESS REJECTIONS

also states the above citation. “... To establish a *prima facie* case of obviousness, three basic criteria must be met. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitation”.

- (4) Thus, based on *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) and MPEP 2143.03, 2141, 706.02(j), Applicant respectfully submits that the combination are improper, and that Claim 21 is patentably differs from the prior art.

III.5. The proposed combination or modification changes the reference operation principles as pointed out below. Thus, that is impermissible in view of MPEP 2143.01.

- (1) Suganuma’s process fixes its preform feeding speed. [pp.2–4]
- (2) Harding’s process adjusts its preform feeding speed to maintain an average fiber drawing speed within $\pm 5\%$ of the present pulling rate and to thus control the glass melting rate. [Abstract and claims]
- (3) **The proposed combination would change the control operation principles of both references.**
- (4) Furthermore, **Harding’s preform feeding speed adjustment is not based on the**

calculated preform deviation, the preform measurement, and the predetermined preform value as claimed in Claim 21. Suganuma's control system does not adjust its preform feeding speed.

(5) Because the operation principles of the references are clearly different from the claimed present invention, the proposed modification or combination would change the both operation principles of the references.

(6) MPEP 2143.01 THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

The court reversed the rejection holding the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate." 270 F.2d at 813, 123 USPQ at 352.

III.6. Applicant points out that the previous Claim 21 already patentably differs from the new reference and the prior art by adjusting the preform feeding speed and the fiber drawing speed based on the calculated preform deviation and the calculated fiber deviation. To show his cooperation to work together, Applicant proposes the further amendment to Claim 21 as listed above.

III.7. Applicant points out that the present invention presents the novel and patentable control principles, one of which is based on the calculated preform deviation, the calculated fiber diameter deviation, the measured preform diameter or shape and the predetermined preform value, over the prior art. This control principle is valid for either large or small deviations with the goal to let the fiber deviation being zero. That is totally different from the prior art. That is also recognized by previous Examiners. That is the allowable subject matter as recognized and agreed by the new Examiners after the discussion.

III.8. Dependent claims 24-25 incorporate all the subject matter of claim 21 and add additional subject matter which makes them a fortiori and independently patentable over the prior art.

MPEP 2143.03 All Claim Limitations Must Be Taught or Suggested

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). ...If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). [emphasis added]

Claim 24 recites: “the control signals are further based on the fiber measurement and the predetermined fiber value.”

Claim 25 recites: “the position of measuring the optical fiber is at a position at which shrinkage of the outer diameter of said optical fiber is not larger than a predetermined allowable diameter deviation value of said optical fiber”.

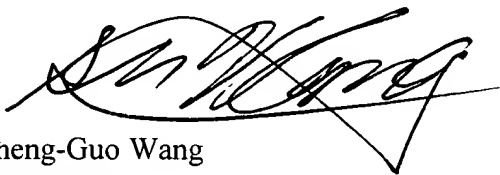
III.9. Thus, applicant respectfully submits that the amended Claims 21 and 24-25 is patentable over the prior art.

IV. Conclusion

For all of the above reasons, applicant respectfully submits that the amended claims are now in proper form, that the claims all define patentably over the prior art, and that the claims contains the agreed allowable subject matters with the new Examiners' constructive and helpful suggestions.

Therefore, Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Very respectfully,



Sheng-Guo Wang

704-503-0747

Dec. 22, 2006